

# Private Fuel Storage, LLC

May 17, 2006 Update for the Natural Resources,  
Agriculture & Environment Interim Committee

Denise Chancellor, Assistant Attorney General  
Dianne Nielson PhD., Executive Director  
Utah Department of Environmental Quality

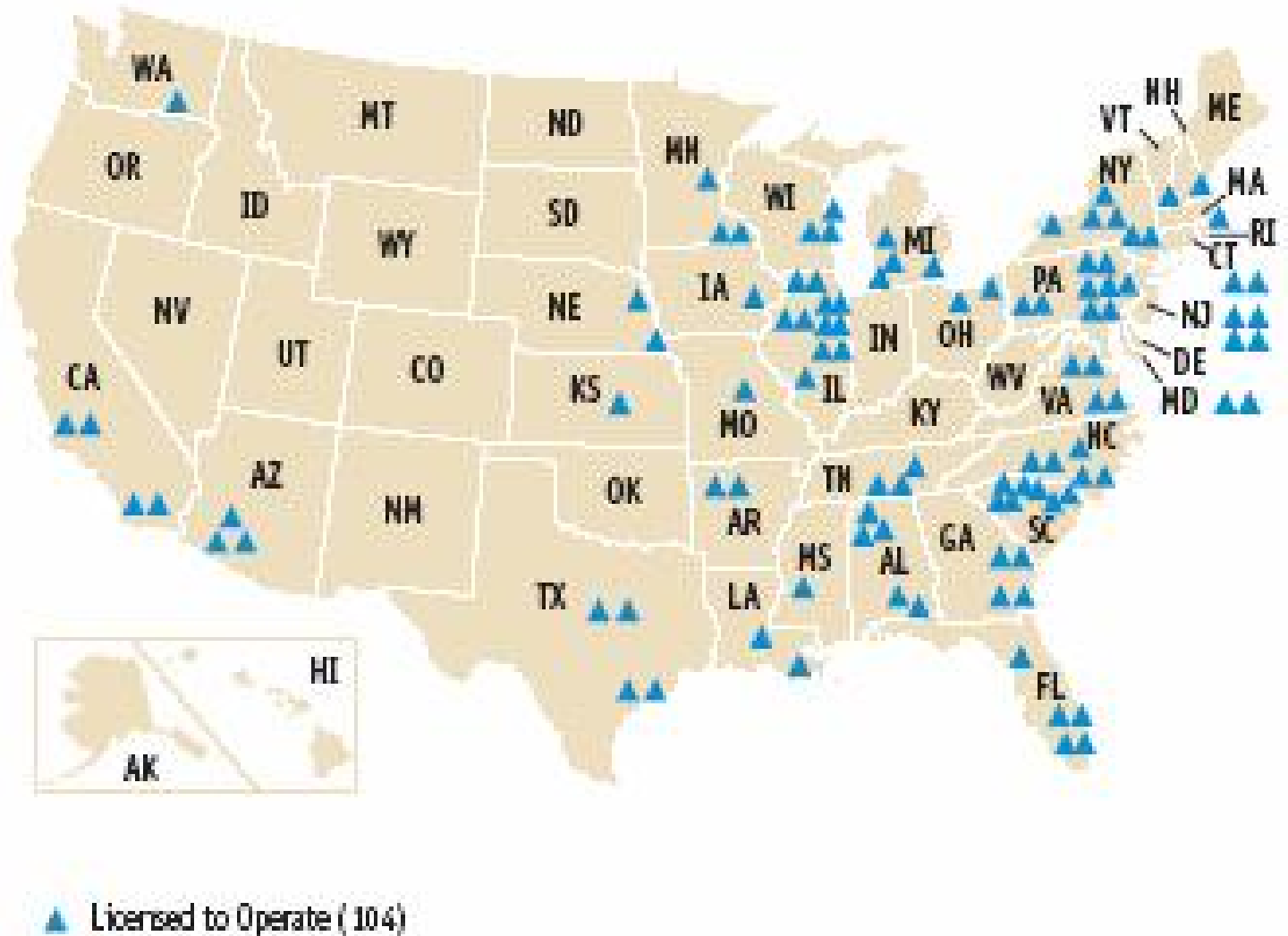
# Nuclear Power

*It is not too much to expect that our children will enjoy in their homes electric energy too cheap to meter....*

Lewis Strauss, AEC Chairman, 1954



# U.S. Nuclear Power Plants



# Nuclear Power Generation

Nuclear reactors are powered by enriched Uranium 235

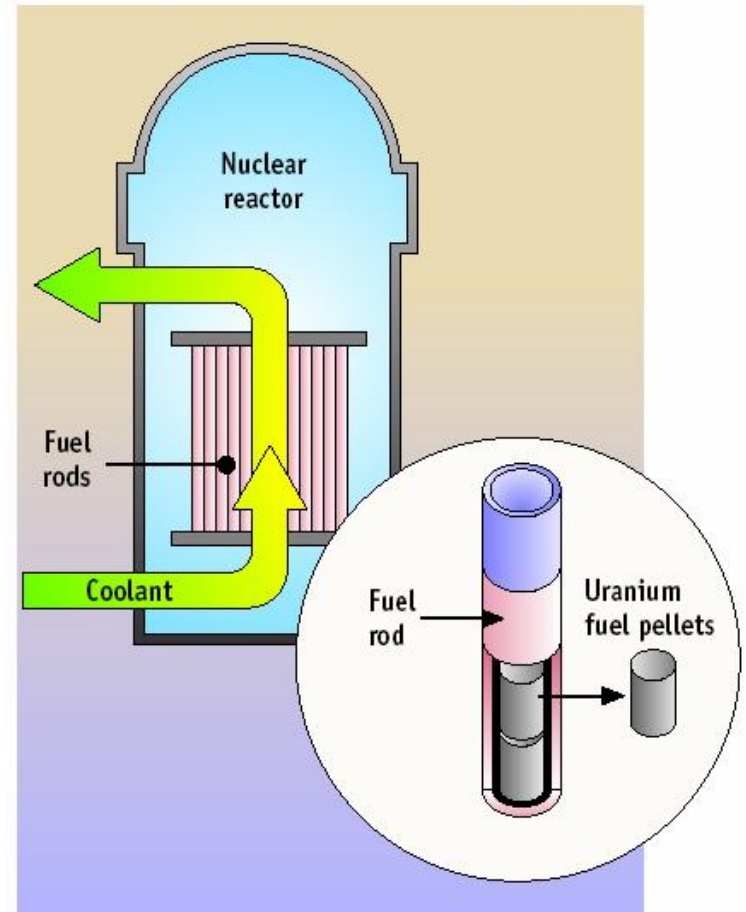
Fission of enriched uranium →

Heats water →

Steam →

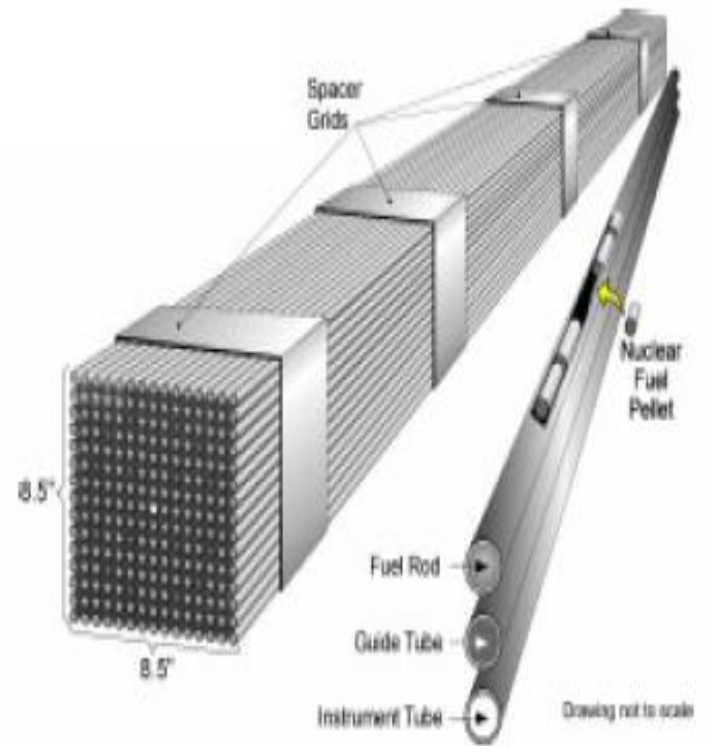
Drives turbines →

Electricity



# Nuclear Fuel Rods

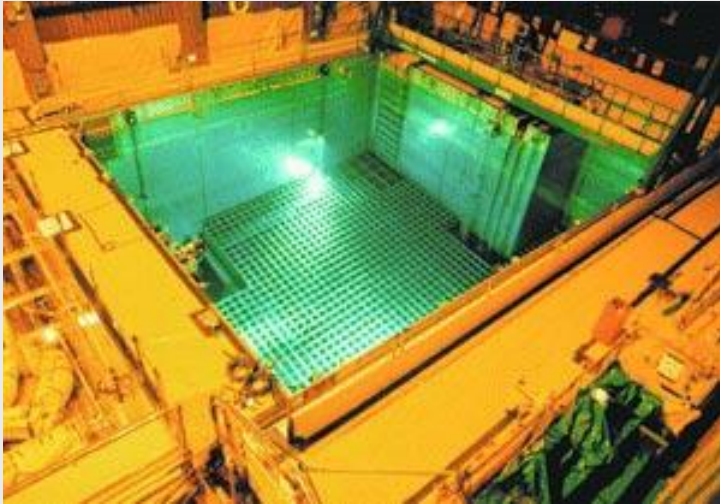
- **Fuel Rods are solid enriched uranium pellets encased in a metal tube.**
- **Every 18 to 24 months, a third of the fuel rods are replaced with fresh fuel.**



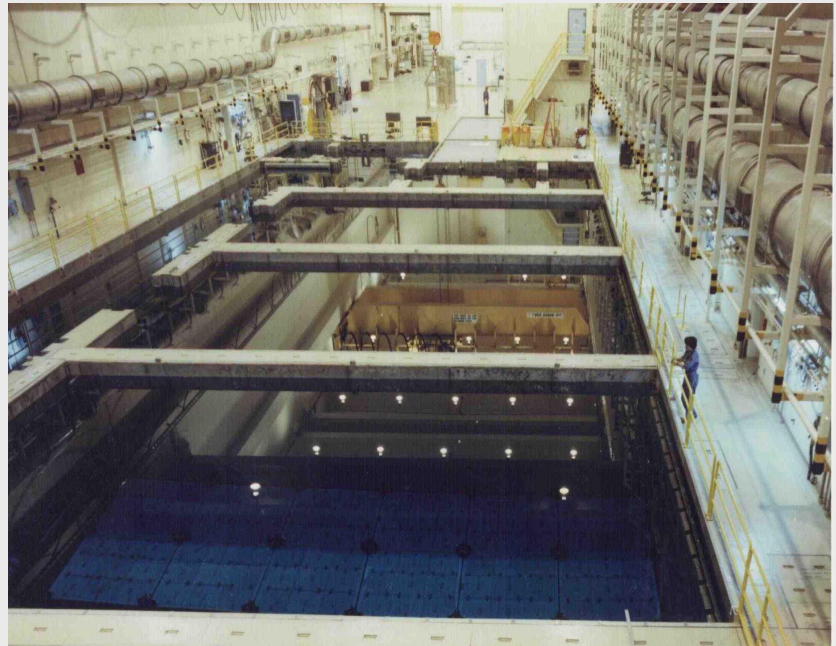
Typical nuclear fuel assembly design

# Spent Nuclear Fuel

Fuel rods are moved from the reactor into the spent fuel pool



Water provides some radiation shielding



# Loading Spent Fuel into Dry Casks

- Loading takes place in the spent fuel pool
- Fuel must be cooled for at least 5 years



# Dry Cask Canister

Honeycomb basket for fuel assemblies

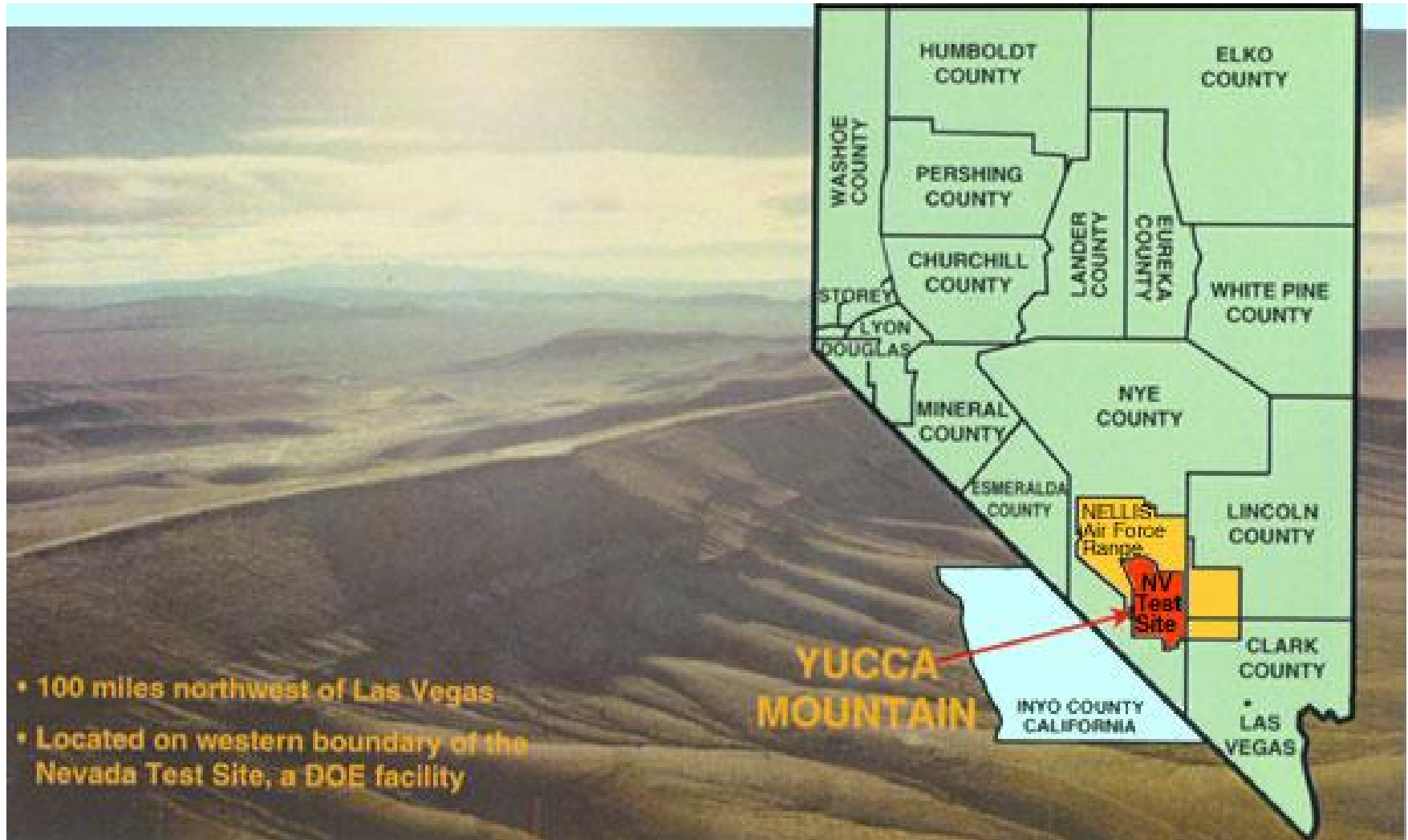






# DRY CASK STORAGE

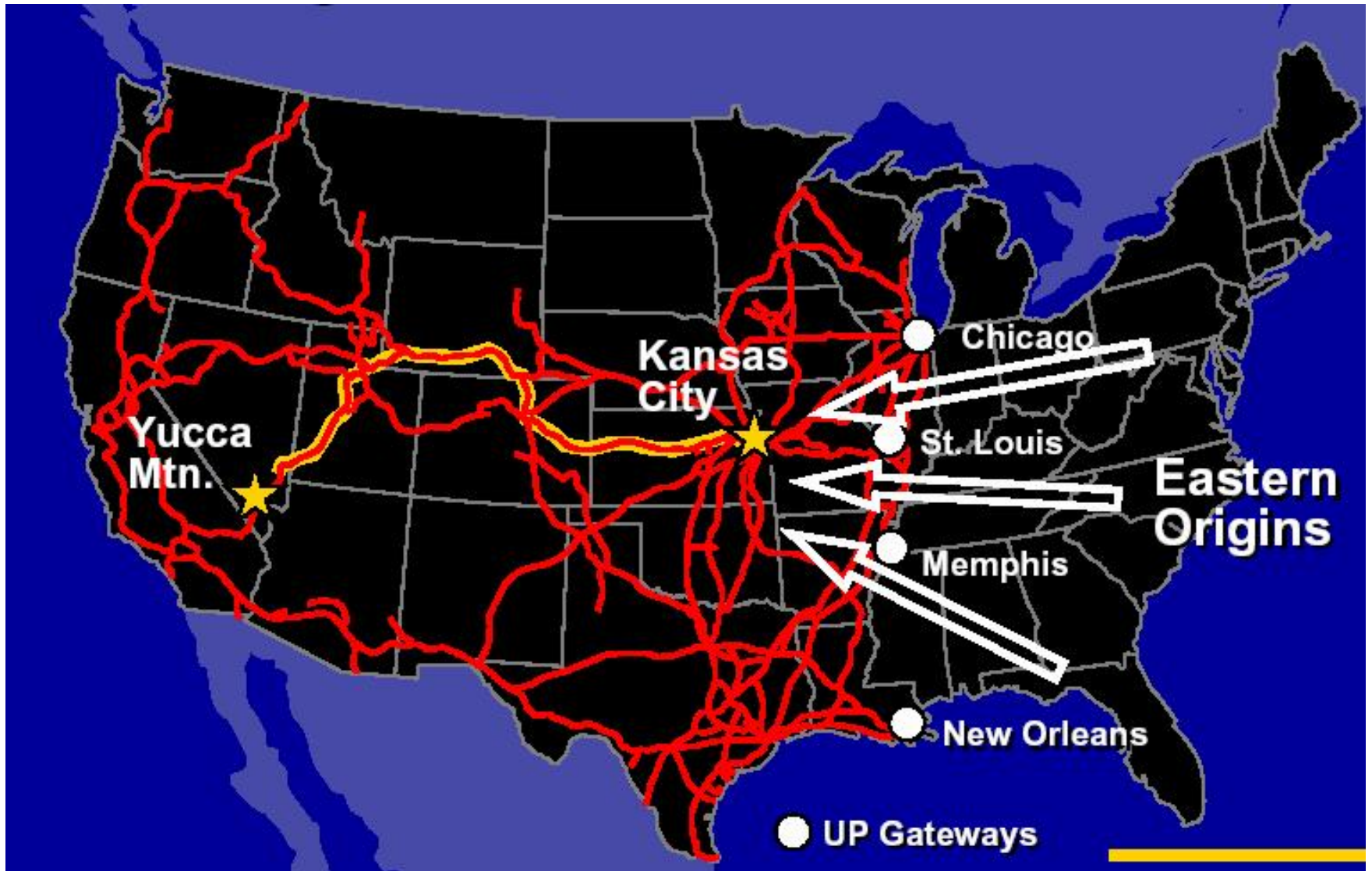
# Yucca Mountain, Nevada



# Yucca Mountain Time Line

- 1982 Permanent nuclear waste disposal in a deep geologic repository ( Nuclear Waste Policy Act).
- 1987 Yucca Mt. Nevada only candidate site.
- 1998 DOE to begin disposal of spent nuclear fuel.
- 2002 President and Senate approve Yucca Mountain as the permanent repository site.
- 2007-08 DOE plans to submit application to NRC for licensing the repository.
- 2011-12 NRC decision on licensing the repository.

# Union Pacific's Preferred Route



Roger Dolson, UP Presentation, 092105 90% of all shipments to Yucca Mt. will travel through Utah

# The volume of commercial spent nuclear fuel continues to increase

- 67,000 MTU: capacity of Yucca Mt. for commercial SNF.
- ~ 60,000 MTU: current inventory of commercial SNF.
- ~ 2,000 MTU: annual rate of generating new SNF.
- > 67,000 MTU: accumulation of SNF by 2010 (GAO estimate) .
- 115,000 MTU: volume of SNF by 2046 from plants operating 10 yrs. beyond current 40 yr. term (DOE estimate).

# The PFS Project

- 1997 - Consortium of 8 nuclear utilities applied to NRC for a storage license.
  - 4,000 casks of spent nuclear fuel (40,000 MTU).
  - Site on the Skull Valley Goshute Indian Reservation.
- 2006 (Feb. 21) - NRC issues PFS a storage license
  - PFS is limited one specific storage cask.
  - DOE has yet to select a standard canister that it will accept for permanent disposal.
  - DOE may not collect fuel stored at the PFS site.
  - PFS has yet to show NRC it is financially qualified to construct and operate the storage facility.
- 2006 (Jan. 6) - Cedar Mt. Wilderness area created.

# The PFS Project (cont'd)

- PFS intended to build a rail line in Skull Valley for all rail shipment directly to the Reservation.
  - The Cedar Mt. Wilderness Area precludes a rail spur.
  - PFS must now transfer casks from rail car to heavy haul truck for transportation along Skull Valley Road.
- PFS needs right-of-way approval from BLM.
  - BLM received over 6,000 comments opposing PFS's use of public land for an intermodal site.
- PFS needs lease approval from BIA.
  - The Band-PFS lease is limited to 25 years with one 25 year renewal term (expires Dec. 2046).

# TRANSPORTATION

Historic Rail Shipments for **17 years** from 1979-96

147 shipments; volume 1,057 MTU

PFS **Annual** Rail Shipments

**50 shipments; 200 casks; volume 2,000 MTU**

PFS rail routes are unknown.

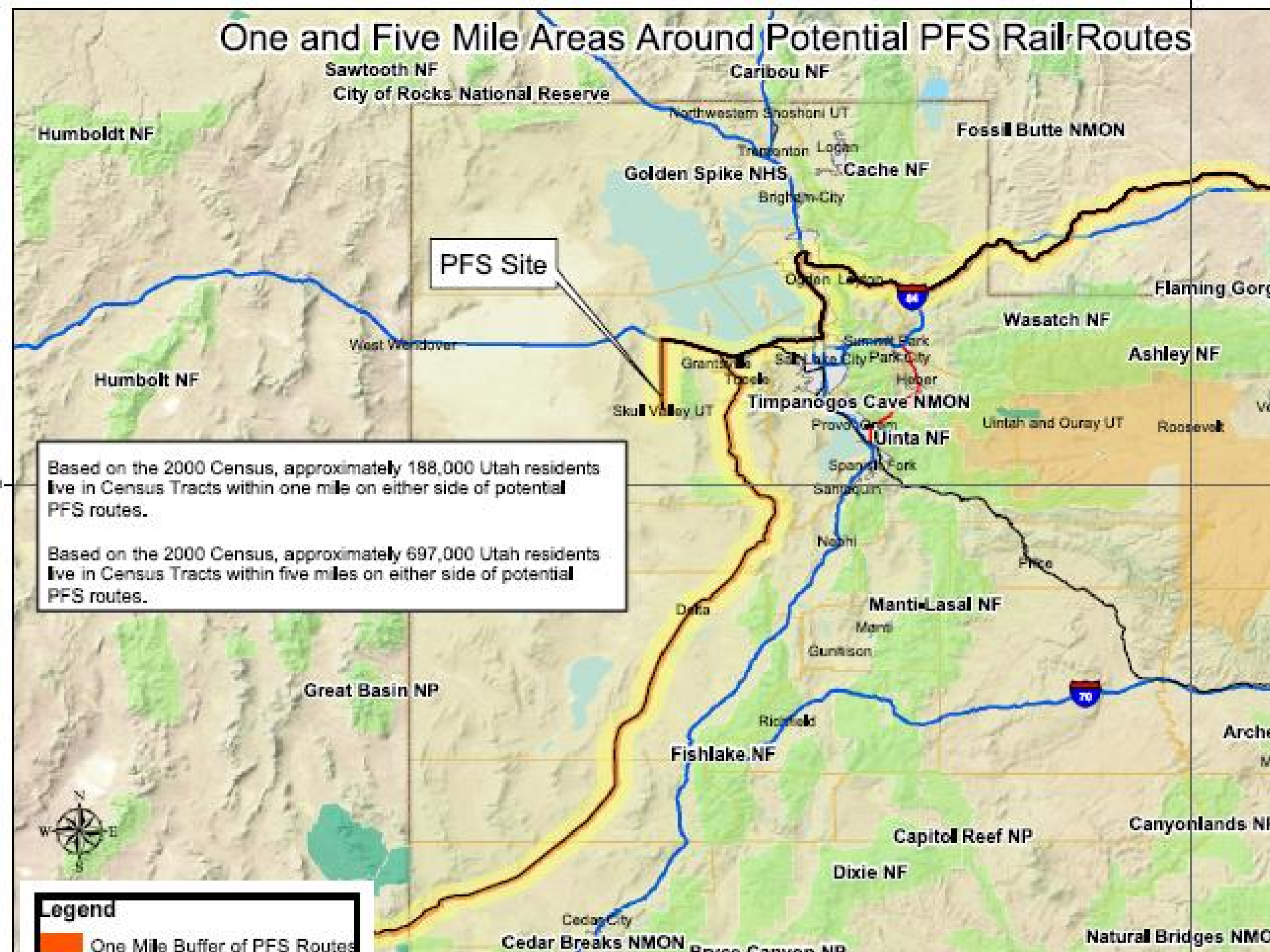
PFS return shipping rate is unknown.

(contaminated/leaking canisters, need to repackage, end of lease shipments).

PFS will rely solely on local emergency responders.



## One and Five Mile Areas Around Potential PFS Rail Routes



# Spent Nuclear Fuel Rail Car

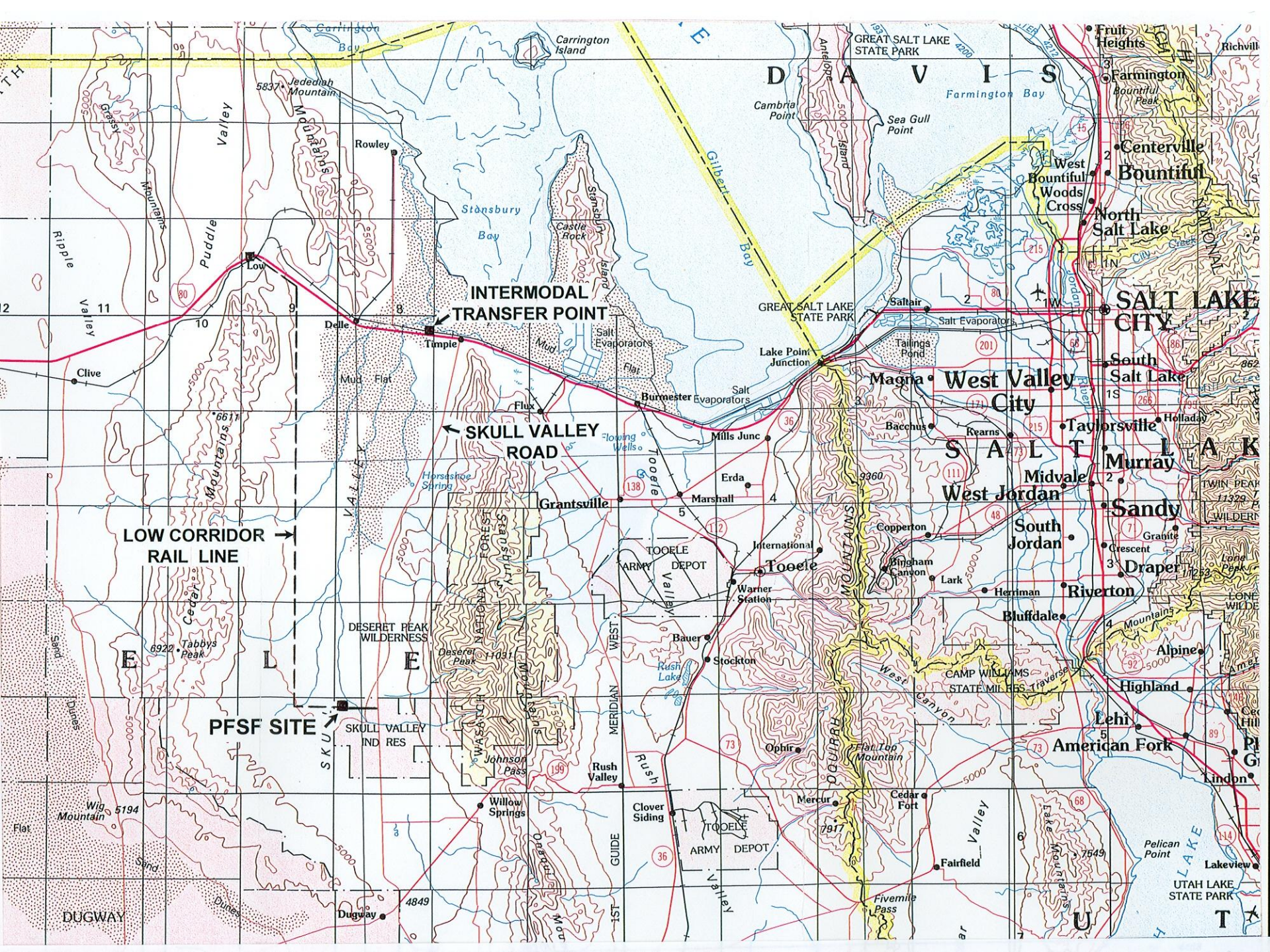


# PFS Prototype SNF Railcar



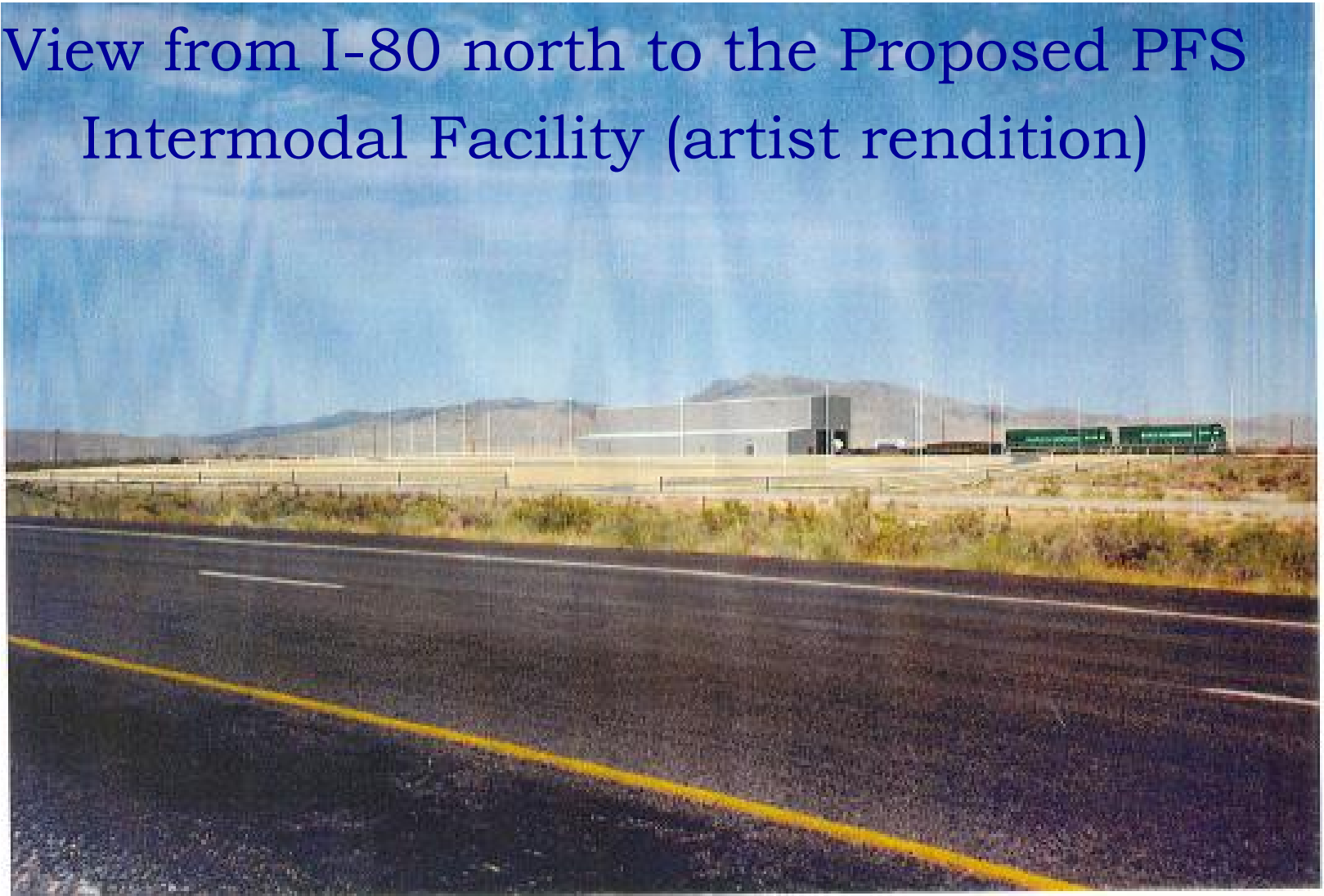
**Pueblo Chieftan, September 21, 2005.**



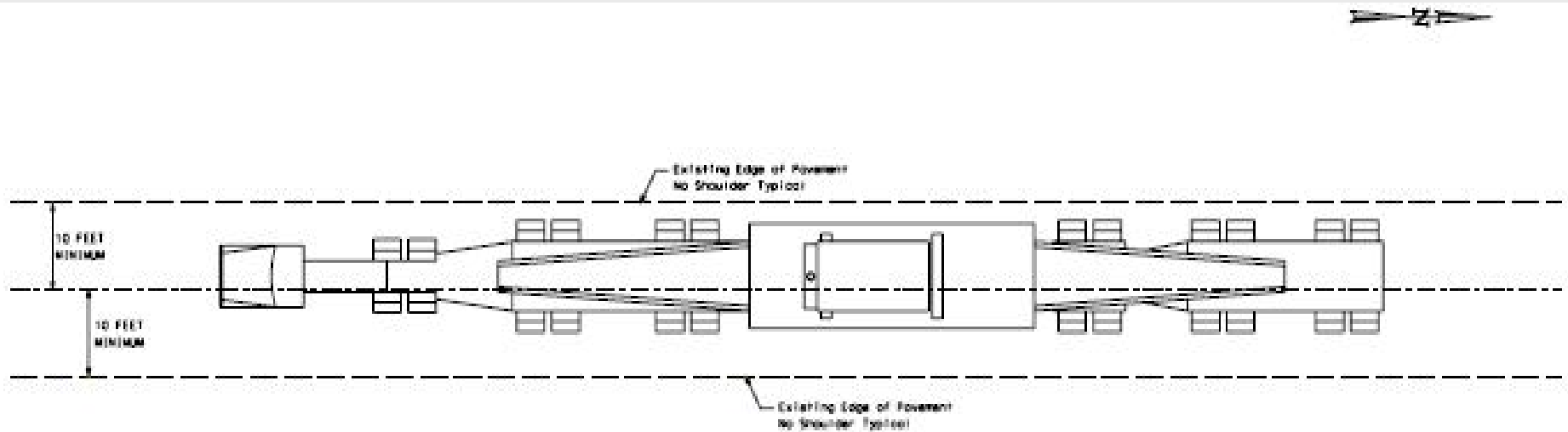




View from I-80 north to the Proposed PFS  
Intermodal Facility (artist rendition)



# Typical PFS Heavy-Haul Truck on Skull Valley Rd.

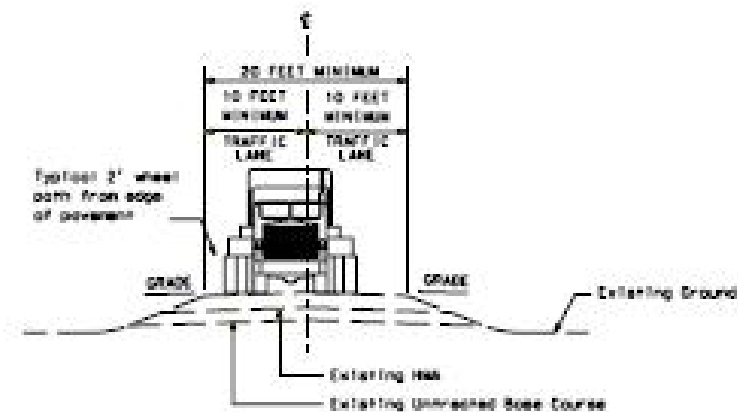


## Loaded Heavy Haul Truck

- 12 feet wide
- 180 feet long
- 225 tons gross weight

## Road Width

- 20-22 feet



SR-186

TYPICAL 2-LANE SECTION



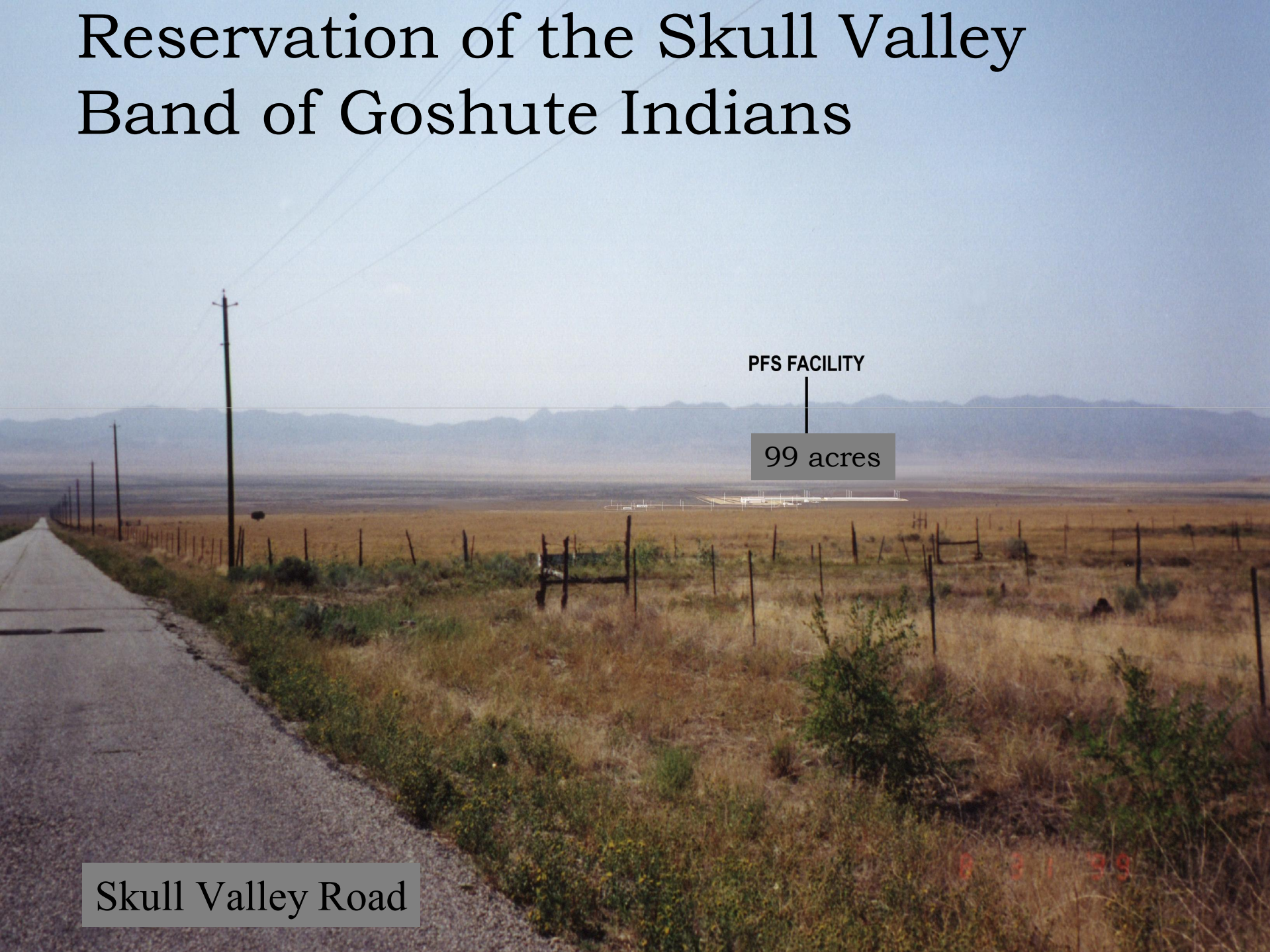


Underpass I-80 &  
Skull Valley Rd.

I-80 Frontage  
Road approaching  
Skull Valley Road



# Reservation of the Skull Valley Band of Goshute Indians



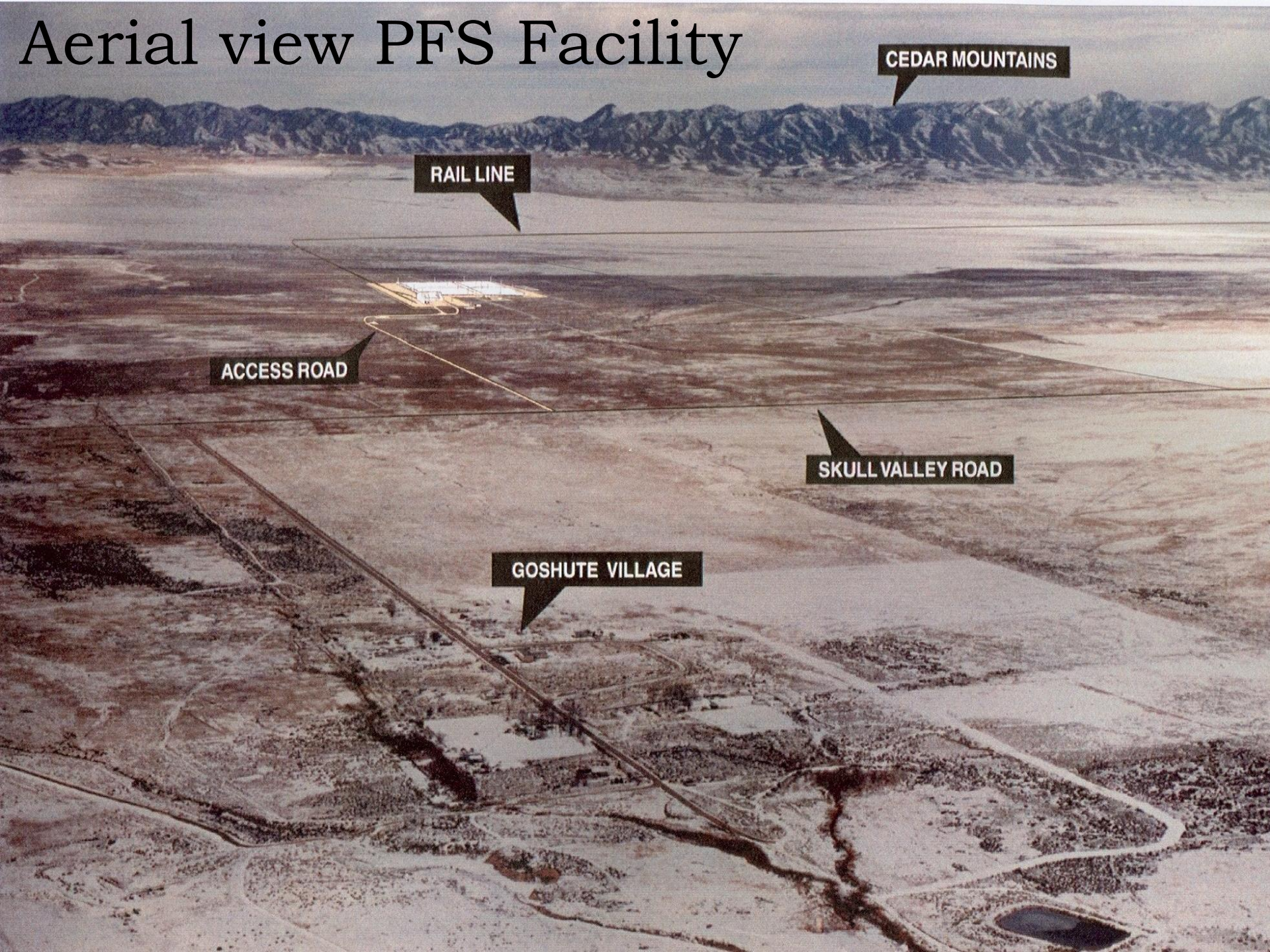
PFS FACILITY

99 acres

Skull Valley Road

8 3 1 99





# Aerial view PFS Facility

CEDAR MOUNTAINS

RAIL LINE

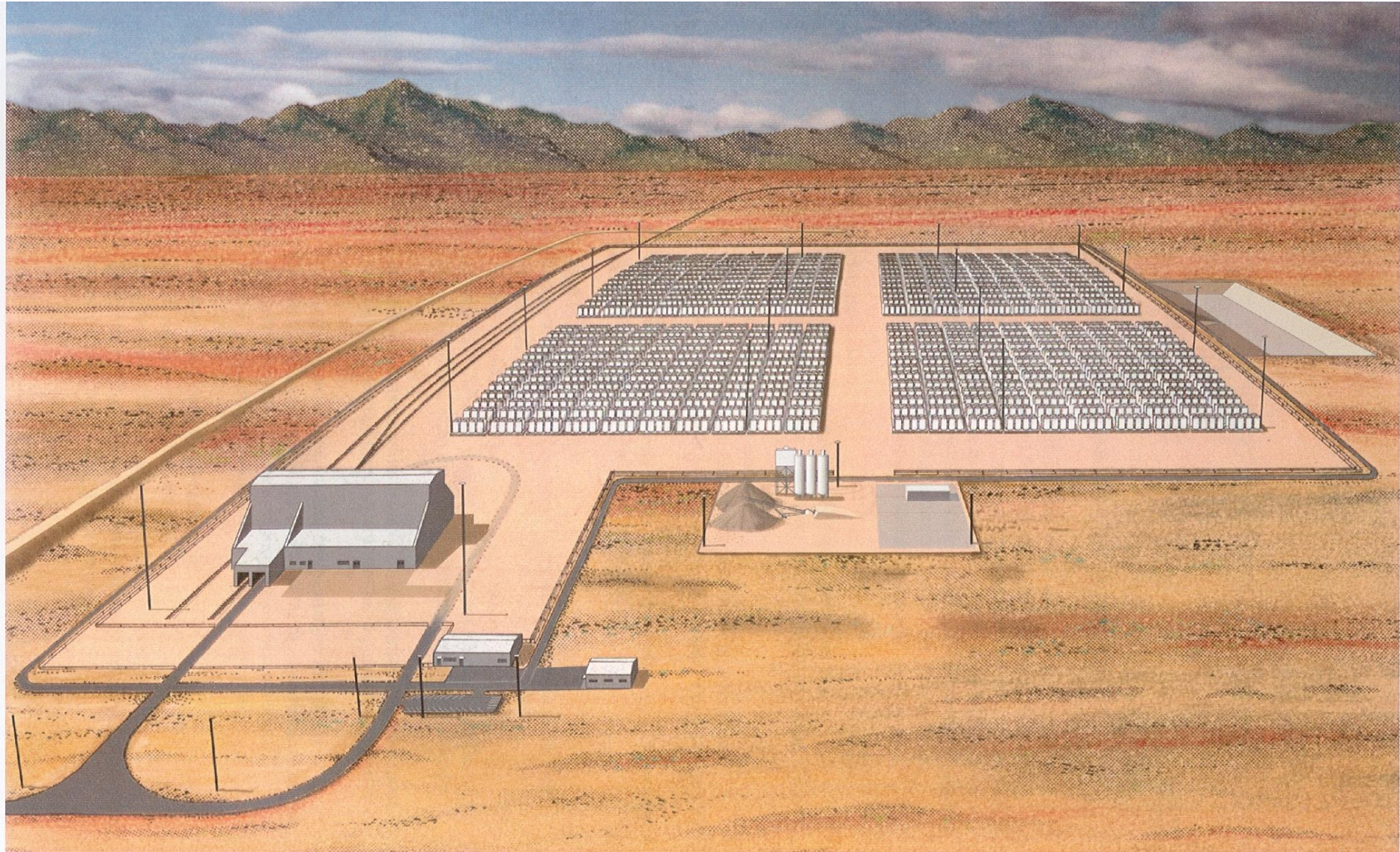
ACCESS ROAD

SKULL VALLEY ROAD

GOSHUTE VILLAGE



# Proposed Private Fuel Storage



Artist rendition of facility. PFS EIS.





# Technical and Regulatory Standards

No precedent for away-from-reactor, spent nuclear fuel, dry cask storage facility or for volume of shipments to PFS.

- No contingency for loss of integrity of nuclear fuel cask.

PFS could not meet the existing standards:

- Obtained an exemption to lower the seismic standard.
- Obtained order of magnitude lower standard for aircraft crashes than nuclear power plants.

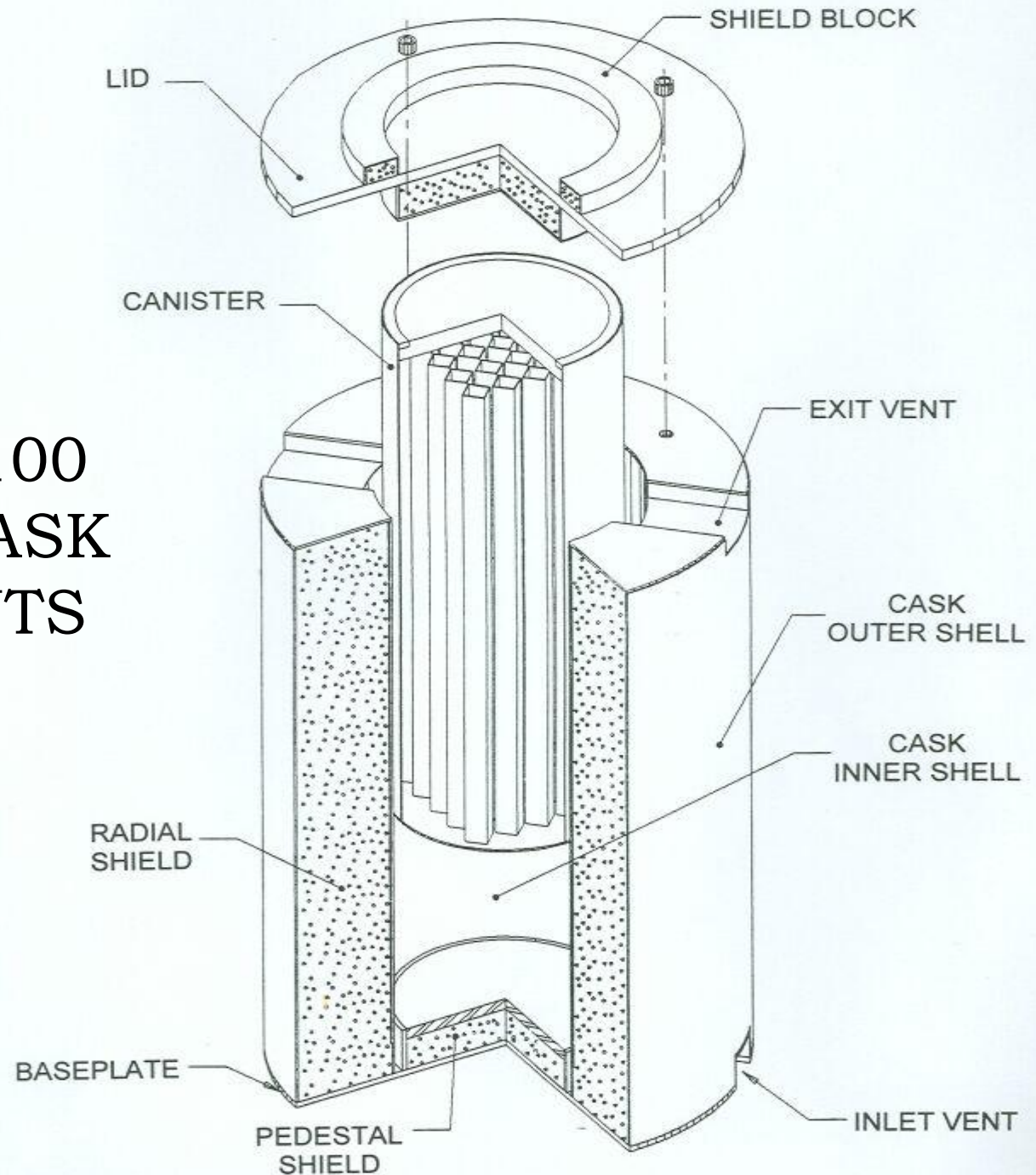
Because there is too much uncertainty of the probability of an aircraft crash into the PFS site, an administrative law judge and a Commissioner voted against licensing PFS.

# Legal Challenges

- Utah litigated PFS's application before the NRC from 1997 through 2006.
- Utah has appealed NRC licensing decisions to the D.C. Circuit Court of Appeals.
- Utah is prepared to file legal challenges to any BLM or BIA approvals to PFS.



# HI-STORM 100 STORAGE CASK COMPONENTS



From PFS SAR Fig. 1.3-1

# Financial Uncertainties Associated with PFS

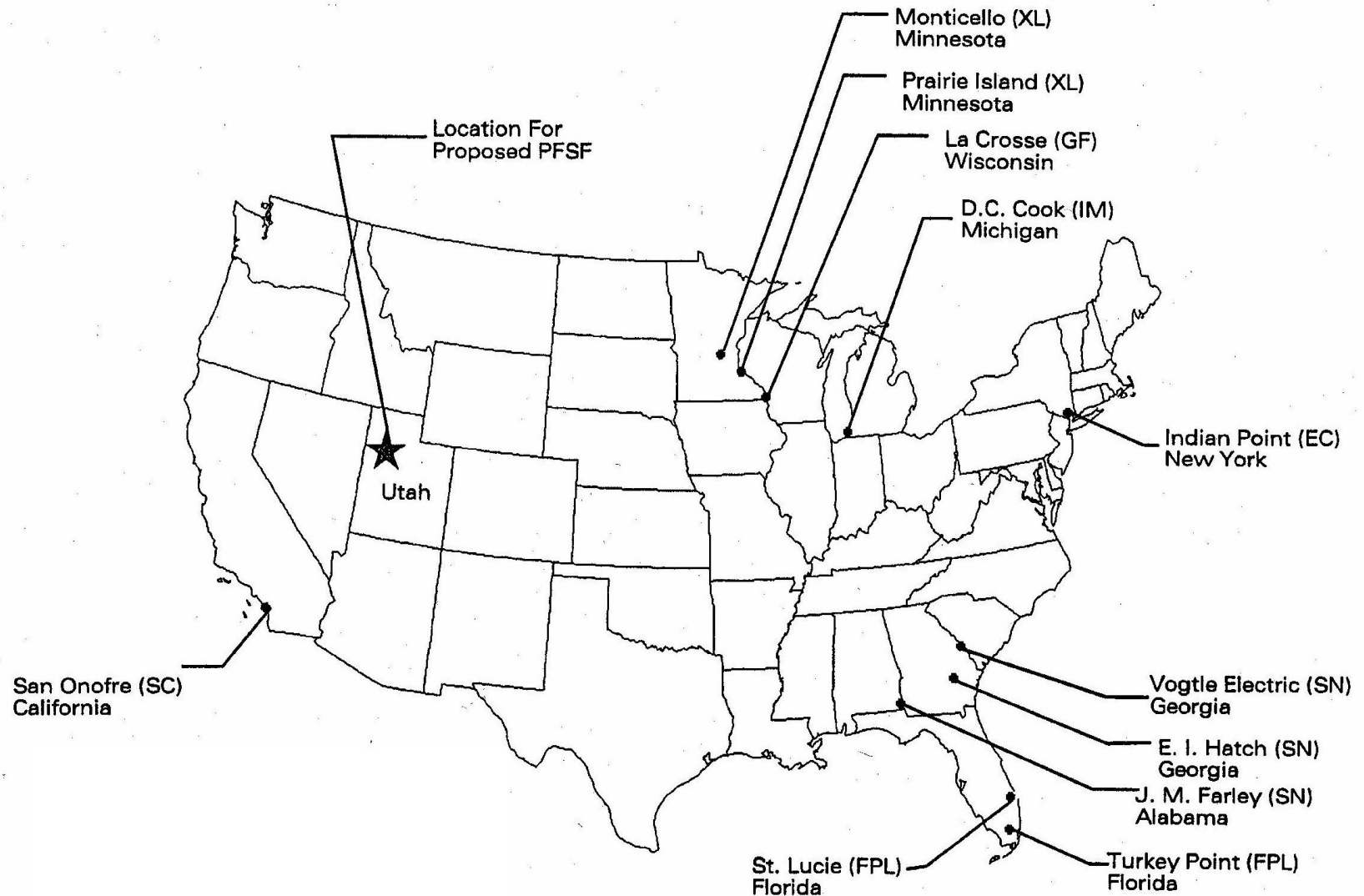
- As a limited liability company, only the assets of PFS itself (not assets of its members) are at risk.
- PFS has no assets independent of its members.
- PFS plans to fund the project by passing costs to customers (no member financial contributions).
  - Delinquent payments and ability to safely operate
  - Fate of casks stored at PFS if it filed for bankruptcy
- Support by PFS members is steadily eroding.

# PFS Member Companies

33.7%	Xcel Energy (Northern States Power), Minnesota
11.8%	Genoa FuelTech (Dairyland), Wisconsin
11.5%	Florida Power & Light (Constellation)
11.5 %	Southern Company, Alabama
11.1%	Entergy (Con. Edison, New York)
10.5%	American Electric (Indiana-Michigan Power)
6.9%	First Energy (GPU)
3.0%	Southern California Edison



# PFS Member Locations



# Utah Opposes PFS Facility Based on Public Policy and Safety

- Those who benefit from nuclear power must take responsibility for their spent fuel until the federal government disposes of it.
- No NEED for away-from reactor storage.
  - ♦ 2/3<sup>rd</sup> of all operating reactors have or are seeking dry cask storage.
  - ♦ 12 of 14 shutdown reactors have dry cask storage.
  - ♦ 6 of 8 PFS members are unlikely to use PFS (Salt Lake Tribune September 2005).
- At-reactor storage
  - ♦ Spent nuclear fuel is already on-site during reactor operation.
  - ♦ Technical and emergency experts are on-site at the reactor.
  - ♦ Transportation risks are minimized.
  - ♦ Over time, radioactive decay dissipates heat and reduces radioactivity.



## Position on Nuclear Waste

- “The beauty of our state is one of our greatest assets. Utah must not be the dumping ground for America's radioactive wastes. We cannot allow "hotter" levels of nuclear waste into our state. Some may say that funding education through these "hotter" waste types would help pay for our education needs. However, we cannot pay for our children's education by mortgaging their future health and safety. . . .”

# Has time passed by PFS?

*Does the consortium continue to support PFS?*

*Can PFS obtain financial backing?*

*PFS is unable to attract customers until DOE makes a decision on a standard canister.*

*Is the Skull Valley Road corridor safe or feasible?*

*Will PFS obtain approvals from BLM and BIA?*

*Legal uncertainty and Congressional action.*